

A NEW SPECIES OF *GONIOZUS* (HYMENOPTERA: BETHYLIDAE) IMPORTED INTO CALIFORNIA FOR THE BIOLOGICAL CONTROL OF THE NAVEL ORANGEWORM (LEPIDOPTERA: PYRALIDAE)¹

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ABSTRACT: *Goniozus legneri* NEW SPECIES is described. This primary parasite was imported into California from Uruguay for the biological control of the Navel Orangeworm (NOW), *Amyelois transitella* (Walker). The parasite has become established and shows exceptional promise for the control of NOW on almonds in California.

In conjunction with biological control work on the navel orangeworm (NOW), *Amyelois transitella* (Walker), E.F. Legner conducted foreign exploration for natural enemies in Uruguay. During November 1977 Legner collected parasites of this moth with Professor Silvera-Guido near Payanu, Uruguay on *Erythrina cristagalli* Linnaeus. Among the parasites recovered was an undescribed species of bethylid. This material was propagated in Professor Silvera-Guido's laboratory on NOW and shipments of parasites on NOW were sent to the Division of Biological Control, University of California, Riverside, during the spring of 1978. The parasite was cultured in the laboratory, subsequently released against NOW in the Central Valley of California, and has become established on NOW attacking almonds. This paper provides a name for the parasite. A comprehensive biological study is currently being conducted and will be published elsewhere. Terminology follows Evans (1964, 1978).

Goniozus legneri n. sp.

Female: 3.86 mm long (Holotype). Body jet black; wings hyaline, 2.50 mm long. Coxae black; fore femur black with apex dusky; middle femur dark brown with apex somewhat more pale; fore tibia and tarsomeres tan; middle and hind tibiae dusky with apices more pale; middle and hind tarsomeres tan; antenna predominantly tan with apical segments dusky.

Head in dorsal aspect 1.05 times longer than wide, minutely and finely reticulate, with numerous shallow, setigerous punctures forming a conspicuous vestiture of long white setae such that the length of each seta extends to the socket of an adjacent seta. Median longitudinal keel of clypeus short, not conspicuous but acute; scrobal impressions not acute. Ocelli forming a slight, but definite, acute triangle; lateral ocellus less than its diameter from occipital margin; WOT:OOL 6:16. Head in lateral aspect with compound eye rather small, very sparsely setose; HE:LH 19:42. Mandible with three teeth and a truncation. Antenna as illustrated (Figure 3).

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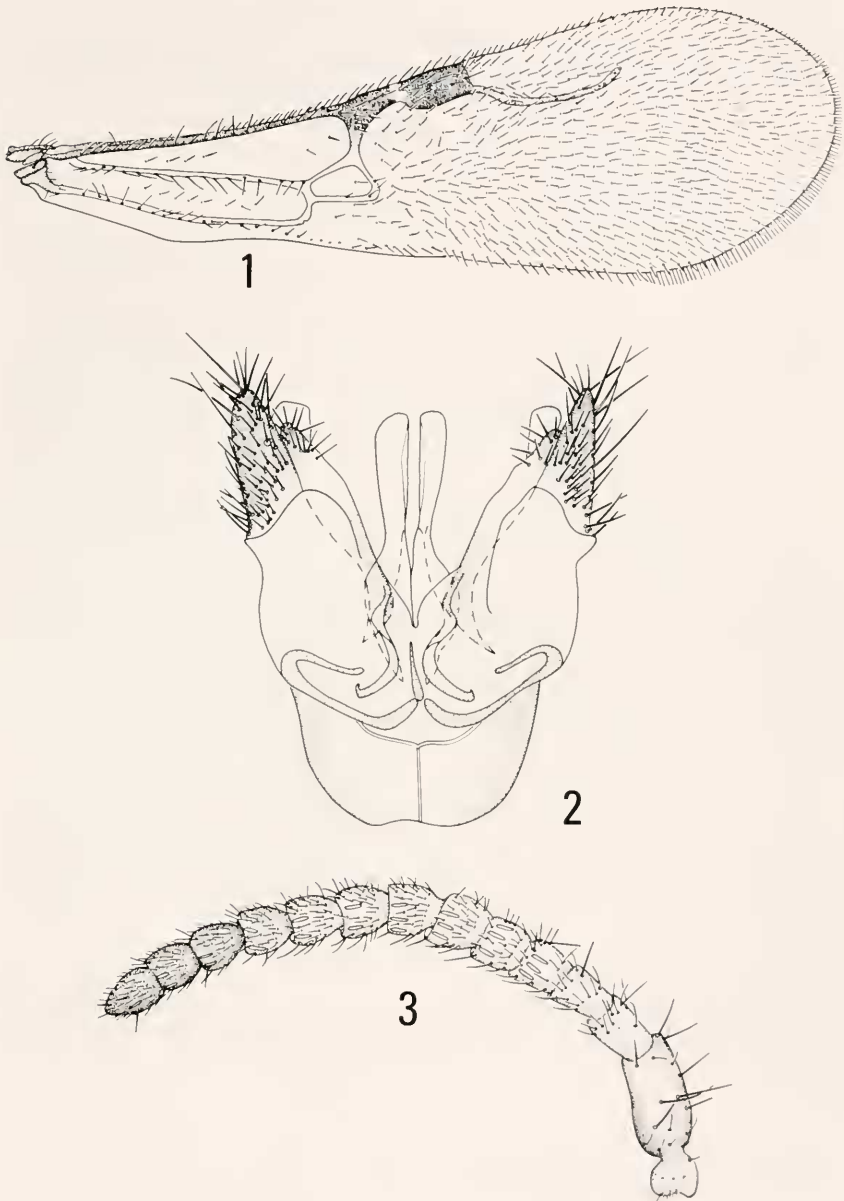


Fig. 1. Right forewing of ♀ *Goniozus legneri*, new species. Fig. 2. ♂ genitalia of *G. legneri*, new species. Fig. 3. Right antenna of ♀ *G. legneri*, new species (inner aspect).

Ratio of pronotum: mesoscutum: scutellum: propodeum 17:15:11:25 in dorsal aspect. Pronotum with same sculpture and chaetotaxy as dorsum of head. Mesoscutum sculpture less pronounced, with two parallel, longitudinal, lateral, shallow sulci (evident only in certain plays of light); anterior 0.20 - 0.25 asetose, remainder with same chaetotaxy as pronotum. Antero-lateral scutellar pits exceptionally small, obsolete; scutellum with same sculpture and chaetotaxy as mesoscutum; anteromedial portion of propodeum with a few minute pits, otherwise polished; remainder of propodeum minutely, finely, obliquely reticulate; lateral carina not strongly developed. Forewing as illustrated (Figure 1).

Male: Virtually identical to female except slightly smaller in size. Genitalia as illustrated (Figure 2).

Described from 105♀, 87♂♂ lab reared in the UCR insectary during September 1981 on *Amyelois transitella* (Walker) from material originally collected near Payanu, Uruguay. Holotype ♀, 5♀♀, 5♂♂ paratypes deposited in the U.S.N.M. Paratypes deposited in the following institutions: California Academy of Sciences (4♀♀, 4♂♂); Canadian National Collection (4♀♀, 4♂♂); Australian National Insect Collection (4♀♀, 4♂♂); Zoological Institute, Leningrad, USSR (4♀♀, 4♂♂); Plant Protection Institute, Pretoria, South Africa (4♀♀, 4♂♂); Entomology Department, Colorado State University, Fort Collins (4♀♀, 4♂♂), Ehime University, Shikoku, Japan (4♀♀, 4♂♂); remainder of paratypical series deposited in Division of Biological control, UCR.

This species is named in honor of Dr. E.F. Legner is recognition of his work with the biological control of the Navel Orangeworm and other agricultural pests.

Goniozus legneri is a member of the PUNCTATICEPS species group, characterized by short antennae, sharp median clypeal keel, complete areolet of the forewing, and scrobes not carinate. Within the PUNCTATICEPS species group *G. legneri* appears most closely related morphologically to *G. emigratus* (Rohwer) of the species in the PUNCTATICEPS species group found in the United States. The new species may be distinguished from *emigratus* based on antennal segment size and shape, shape of the ocellar triangle, relative closeness of the lateral ocellus to the crest of the vertex, and the ratio of the length of the compound eye to the length of the space behind the compound eye to the lateral margin of the vertex (HE:LH). *Goniozus emigratus* is found in Texas, Hawaii, and California; *G. legneri* is found in Uruguay and the Central Valley of California.

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